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1: PCR Methods Appl 1995 Jun;4(6):357-62

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Oligonucleotides with fluorescent dyes at opposite ends provide a quenched probe system useful for detecting PCR product and nucleic acid hybridization.

Livak KJ, Flood SJ, Marmaro J, Giusti W, Deetz K.

Applied Biosystems Division, Foster City, California 94404, USA.

The 5' nuclease PCR assay detects the accumulation of specific PCR product by hybridization and cleavage of a double-labeled fluorogenic probe during the amplification reaction. The probe is an oligonucleotide with both a reporter fluorescent dye and a quencher dye attached. An increase in reporter fluorescence intensity indicates that the probe has hybridized to the target PCR product and has been cleaved by the 5'→3' nucleolytic activity of Taq DNA polymerase. In this study, probes with the quencher dye attached to an internal nucleotide were compared with probes with the quencher dye attached to the 3'-end nucleotide. In all cases, the reporter dye was attached to the 5' end. All intact probes showed quenching of the reporter fluorescence. In general, probes with the quencher dye attached to the 3'-end nucleotide exhibited a larger signal in the 5' nuclease PCR assay than the internally labeled probes. It is proposed that the larger signal is caused by increased likelihood of cleavage by Taq DNA polymerase when the probe is hybridized to a template strand during PCR. Probes with the quencher dye attached to the 3'-end nucleotide also exhibited an increase in reporter fluorescence intensity when hybridized to a complementary strand. Thus, oligonucleotides with reporter and quencher dyes attached at opposite ends can be used as homogeneous hybridization probes.

PMID: 7580930 [PubMed - indexed for MEDLINE]

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1	0	multifluorescent near5 oligonucleotides	USPAT; US-PGPUB; DEFWENT	2003/04/22 14:48
2	3966	trio or triple adj1 fluorescent near5 oligonucleotides	USPAT; US-PGPUB; DEFWENT	2003/04/22 14:48
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6	0	labeled adj2 probes near5 DABSYL	USPAT; US-PGPUB; DEFWENT	2003/04/22 14:58
7	0	label\$ adj2 probes near5 DABSYL	USPAT; US-PGPUB; DEFWENT	2003/04/22 14:58
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=> dup rem l1
PROCESSING COMPLETED FOR L1
L1 5 DUP REM L1 (2 DUPLICATES REMOVED)

=> d l1 1-5

L2 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2003 ACS
AN 2002:391904 CAPLUS

DN 136:382519
 TI Energy transfer labels with mechanically linked fluorophores
 IN Rebek, Julius, Jr.
 FA The Scripps Research Institute, USA
 SO PCT Int. Appl., 62 pp.
 CODEN: PEXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002040701	A2	20020523	WO 2001-US46568	20011108
	WO 2002040701	A3	20030213		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BF, BY, BE, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DL, EC, EE, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KH, KR, KU, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, PA, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, VE, VN, YU, ZA, ZW, AM, AE, BY, KG, KZ, MD, RU, TJ, TM FW: GR, GM, KE, LS, MW, MU, SD, SL, SC, TZ, UG, ZW, AT, BE, CH, CY, EE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2002039514	A5	20030527	AU 2002-39514	20011108
	US 2002111092	A1	20030322	US 2001-5987	20011108
FRAT	US 2000-247522P	P	20001108		
	WO 2001-US46568	W	20011108		
OS	MARPAT 136:382519				

L2 ANSWER 2 OF 5 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE
 1
 AN 2001:251389 BIOSIS
 DN PREV200100151389
 TI Nucleic acid amplification **oligonucleotides** with molecular
energy transfer labels and methods based
 thereon.
 AU Nazarenko, Irina A. (1); Bhatnagar, Satish K.; Winn-Deen, Emily S.;
 Hohman, Robert J.
 CS (1) Gaithersburg, MD USA
 ASSIGNEE: InterGen Company, Purchase, NY, USA
 PI US 6090552 July 18, 2000
 SO Official Gazette of the United States Patent and Trademark Office
 Patents,
 (July 18, 2000) Vol. 1236, No. 3, pp. No Pagination. e-file.
 ISSN: 0098-1133.
 DT Patent
 LA English

L2 ANSWER 3 OF 5 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
 AN 2001:219657 BIOSIS
 DN PREV200100219657
 TI Nucleic acid amplification **oligonucleotides** with molecular
energy transfer labels and methods based
 thereon.
 AU Nazarenko, Irina A.; Bhatnagar, Satish K.; Winn-Deen, Emily S.; Hohman,
 Robert J.
 ASSIGNEE: InterGen Company
 PI US 6117635 September 12, 2000
 SO Official Gazette of the United States Patent and Trademark Office
 Patents,
 (Sep. 12, 2000) Vol. 1238, No. 2, pp. No Pagination. e-file.

ISSN: 0098-1133.
DT Patent
LA English
L2 ANSWER 4 OF 5 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE
2
AN 1999:111074 BIOSIS
DN PREV199900111074
TI Nucleic acid amplification **oligonucleotides** with molecular
energy transfer labels and methods based
thereon.
AU Nazarenko, I. A.; Bhatnagar, S. K.; Winn-Deen, E. S.; Hohman, R. J.
CS Gaithersburg, Md. USA
ASSIGNEE: ONCOR, INC.
FI US 5866336 Feb. 2, 1999
SO Official Gazette of the United States Patent and Trademark Office
Patents,
(Feb. 2, 1999) Vol. 1219, No. 1, pp. 482.
ISSN: 0098-1133.

DT Patent
LA English

L2 ANSWER 5 OF 5 LIFESCI COPYRIGHT 2003 CSA
AN 2000:73652 LIFESCI
TI Nucleic acid amplification **oligonucleotides** with molecular
energy transfer labels and methods based
thereon
AU Nazarenko, I.; Bhatnagar, S.; Winn-Deen, E.; Hohman, R.
CS Oncor, Inc.
SO (19990202) . US Patent: 5866336; US CLASS: 435/6; 435/91.2; 536/22.1;
536/24.3; 536/25.32..
DT Patent
FS W3
LA English
SL English

=> s oligo (2a) quencher (2a) acceptor
L3 0 OLIGO (2A) QUENCHER (2A) ACCEPTOR

=> s oligonucleotide (2a) quencher (2a) acceptor
L4 0 OLIGONUCLEOTIDE (2A) QUENCHER (2A) ACCEPTOR

=> s signal(w)amplification (2a) oligonucleotides
L5 9 SIGNAL(W) AMPLIFICATION (2A) OLIGONUCLEOTIDES

=> dup rem l5
PROCESSING COMPLETED FOR L5
L6 3 DUP REM L5 (6 DUPLICATES REMOVED)

=> d l6 1-3

L6 ANSWER 1 OF 3 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE
1
AN 1997:409756 BIOSIS
DN PREV199799701799
TI Improved sensitivity of whole-cell hybridization by the combination of
horseradish peroxidase-labeled **oligonucleotides** and tyramide
signal amplification.
AU Schoenhuber, Wilhelm; Fuchs, Bernhard; Juretschko, Stefan; Amann, Rudolf

(1)
 CS (1) Max-Planck-Inst. Mar. Mikrobiol., Celsiusstr. 1, D-28359 Bremen
 Germany
 SO Applied and Environmental Microbiology, (1997) Vol. 63, No. 8, pp.
 3268-3273.
 ISSN: 0099-2240.
 DT Article
 LA English

L6 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2003 ACS
 AN 1991:672721 CAPLUS
 DN 115:272721
 TI DNA probe signal amplification in nucleic acid hybridization
 IN Segev, David
 PA USA
 SO Eur. Pat. Appl., 18 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 450594	A2	19911009	EP 1991-105249	19910403
	EP 450594	A3	19920122		
	EP 450594	B1	19961213		
	K: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	CA 2039517	AA	19911004	CA 1991-2039517	19910402
	JP 07088000	A2	19950404	JP 1991-71114	19910403
	JP 3142888	B2	20010307		
	AT 146530	E	19970115	AT 1991-105249	19910403
	ES 2097768	T3	19970416	ES 1991-105249	19910403
	JP 2000279186	A2	20001010	JP 2000-65961	19910403
	US 5437977	A	19950801	US 1992-908584	19920529
FFAI	US 1990-503621	A	19900403		
	JP 1991-71114	A3	19910403		

L6 ANSWER 3 OF 3 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE
 2
 AN 1989:494414 BIOSIS
 DN BR37:105533
 TI THE SYNTHESIS OF BRANCHED OLIGONUCLEOTIDES AS SIGNAL
AMPLIFICATION MULTIMERS FOR USE IN NUCLEIC ACID ASSAYS.
 AU HOEN T; WARNER B D; RUNNING J A; DOWNING K; CLYNE J; URDEA M S
 CS CHIRON CORP., 4560 HORTON ST., EMERYVILLE, CALIF. 94608, USA.
 SO 8TH INTERNATIONAL ROUND TABLE ON NUCLEOSIDES, NUCLEOTIDES, AND THEIR
 BIOLOGICAL APPLICATIONS, ORANGE BEACH, ALABAMA, USA, OCTOBER 2-5, 1988.
 NUCLEOSIDES NUCLEOTIDES. (1989) 8 (5-6), 875-878.
 CODEN: NUNUD5. ISSN: 0732-6311.
 FS BR; OLD
 LA English

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